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**ARTIFICIAL INTELLIGENCE IN HUMAN RESOURCE FUNCTIONS -
NATURE AND PRACTICAL APPLICATION**

Miroslava Mihailova Peicheva¹

¹ Prof. Dr., Department Human Resources and Social Protection, UNWE, Bulgaria.
E-mail: mpeicheva@unwe.bg

Abstract

The human resources activity is going through an interesting stage of its development. The beginning was digitalization, then digital transformation, and now it is the turn of artificial intelligence, which is persistently searching for and successfully finding its place in human resources functions. The aim of the present study is to analyze the nature and practical application of artificial intelligence (AI) in the functions related to human resources. To achieve this goal, the following tasks have been performed: an analysis of the definitions of AI has been performed; the practical application of AI in the functions of human resources is analyzed; based on the analysis, some basic conclusions are made. The object of the study are the functions of human resources. The subject of the research is the application of AI in the functions of human resources. The general scientific methods for analysis, synthesis, induction, deduction and analogy are used in the research. The article presents some of the results of a larger study on AI in human resources. Among the main conclusions of the study are: the need to develop a new curriculum in which human resources professionals are trained, maintaining the current professional competence of human resources teachers, fair standards and social responsibility should be included in the development of software products with AI in the field of human resources.

Keywords: artificial intelligence; human resources; recruitment, selection

Introduction

The topic of AI in human resources functions is relatively new and attracts the attention of more and more researchers. The need for research on the topic is caused by the desire to acquire more knowledge related to the rules for the introduction of AI in human resources functions, as well as the benefits of its implementation. AI has found a place in the functions of recruitment and selection, training and development, as well as in the performance appraisal. Usually, the most difficult part of the selection activity is to identify the right candidates. AI helps HR professionals shorten the time to find qualified job applicants, review resumes, testimonials and cover letters.

Moreover, according to a survey conducted by Oracle and Future Workplace in 2019, 64% of people trust robots more than their managers (the highest percentage of respondents who think this way is from India (90% of respondents)).

50% turned to robots for advice instead of their manager, 82% of respondents believe that robots do certain some types of work better than their managers (such as providing objective information (36% of all surveyed workers), maintaining work schedules (34% of all surveyed workers), problem solving (29% of all surveyed workers) and budget management (26% of all surveyed workers). 32% of all surveyed workers surveyed said they believed robots would replace their managers, with Generation Z most strongly believing. (Oracle, Report 2019).

Some of the reasons why interest in AI is growing are that it "reduces the mistakes a person makes; it is available 24/7; makes decisions faster" (Advani, V., 2021). Other reasons for the interest in AI according to respondents in an Oracle study is that AI will provide people with more free time (36% of respondents) and the opportunity to acquire new skills (36% of respondents) (Oracle, Report 2019).

Therefore, AI is not a topic for the future, but a present that is developing rapidly. Evidence of this is the data from the Oracle survey, which shows what percentage of respondents currently use AI in the workplace. Respondents from India (India), China (China), the United Arab Emirates (UAE), Australia (Australia), New Zealand New Zealand, Brazil, Singapore, USA, United Kingdom (UK), France, Japan gave a positive answer. But the highest percentages of respondents who answered to this question are: India (78%), China (77%) and the United Arab Emirates (66%).

What do the data on the use of AI in human resources activities show? According to the report of the consulting company Mercer Global Talent Trends 2019. "Eighty-eight percent of companies worldwide already use AI in some way for HR." (Brin, 2019).

According to a KPMG report (2019), which contains results from interviews with 1,200 professionals, "over the next few years, 60% of departments are expected to invest in predictive analytics, 53% in process automation and 47% in artificial intelligence."

Results of the other research dedicated to artificial intelligence in the recruitment & selection: innovation and impacts for the human resources management show that the majority of respondents, in this research, (87%) believe that AI is important for the evolution of the HR area." (Jatoba, Gutierrez, Fernandes, Teixeira, Moscon, 2019)

The presented data eloquently show that AI is developing rapidly and it is increasingly accepted by employees.

The aim of the present study is to analyze the nature and practical application of artificial intelligence (AI) in the functions related to human resources. The hypothesis of the research is that AI has a place in the functions of human resources, both in the present and in the future, but the successful application requires the observance of socially responsible, prepared for modern conditions human resources specialists. In the present article, the analysis is predominantly related to the use of AI in recruitment and selection, a function in which its presence is most active.

1. Analysis of definitions of the nature of artificial intelligence

The term “artificial intelligence” was first used in 1956 by a group of researchers around John McCarthy and can best be defined by the central question it studies.

Due to the Oxford dictionary, AI is “The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.”

In the research of Peter Cappelli, Prasanna Tambe, Valery Yakubovich we find the definition that AI conventionally refers to a broad class of technologies that allow a computer to perform tasks that normally require human cognition, including decision-making.“ (Cappelli, Tambe, Yakubovich, 2018).

Alessandra Miasato and Fabiana Reis Silva which analyze the risks of discrimination in the workplace when using artificial intelligence, analyze definitions of it, according to which

“It can be said that: ‘[...] it is an umbrella term that includes a variety of computational techniques and associated processes dedicated to improving the ability of machines to do things requiring intelligence, such as pattern recognition, computer vision, and language processing’.⁷ In other words, it is the science of mimicking some aspects of human intelligence by use of a machine.” (Miasato, Silva, 2021)

According to Josh Bersin “AI it is a wide range of algorithms and machine learning tools that can rapidly ingest data, identify patterns, and optimize and predict trends. The systems can understand speech, identify photos, and use pattern matching to pick up signals about mood, honesty, and even personality. Statistically AI systems can “predict” and “learn,” by plotting curves of possible outcomes and then optimizing decisions based on many criteria.” (Bersin, 2018)

In his study, Vaishali Advani argues that “The purpose of Artificial Intelligence is to aid human capabilities and help us make advanced decisions with far-reaching consequences. That’s the answer from a technical standpoint. From a philosophical perspective, Artificial Intelligence has the potential to help humans live more meaningful lives devoid of hard labour, and help manage the complex web of interconnected individuals, companies, states and nations to function in a manner that’s beneficial to all of humanity.”(Advani, 2021).

Oracle provides the following definition of AI „Artificial intelligence (AI) is an area of computer science that emphasizes the creation of intelligent machines that work and react like humans.“ At the same time, they draw attention to another important term related to AI „Machine learning (ML)“. According to their definition “Machine learning (ML) is a subset of AI that is more narrowly focused on how computer programs interpret data and learn. Instead of relying on a person to code a program to complete a task, ML can recognize patterns and make predictions that can inform the AI. For example, a ML system can catalog employee behaviors to evaluate whether they may be departing for a new opportunity. In short, AI encompasses all of the ways computer programs can make intelligent decisions, while ML focuses on how AI collects and uses data that’s not explicitly programmed by a person.“ (Oracle Corporation).

The other definition of AI is from Jyoti Kapoor. According to him „Artificial Intelligence is a technology that is defining new-age paradigms of operating business.it is a tool that automates and accomplishes most of the low-value HR functions so that the larger focus can be driven to the strategic scope of work. From recruitment to talent management, AI has

the power to transform employee experience manifolds through speedy and accurate processing of large volumes of data. In the era today, AI capabilities are scaling new heights and driving the way we function.“ (Kapoor, 2021)

“AI for recruiting is the application of artificial intelligence to the talent acquisition process, where machine learning can learn to shortlist your ideal candidate, as well as automate manual tasks in the recruitment process. This technology is designed to streamline or automate some part of the recruiting workflow, especially repetitive, high-volume tasks.” (Ideal.). In the words of Katrina Kibben, Randstad „Any area of recruiting where distinct inputs and outputs occur – like screening, sourcing and assessments – will largely become automated.“ (Ideal.).

The most common software tools used in recruitment are the Applicant Tracking System (ATS), Candidate relationship management (CRM), and Interviewing software. The difference here is that ATS focuses on candidates, while CRM focuses on potential candidates, CRM is designed to stimulate active and passive candidates, and the goal is to attract candidates who are qualified for the company and / or who have expressed an interest in a company but have not submitted documents for work in it. The Interviewing software allows you to conduct real-time interviews or view interviews that have already been recorded.(Ideal). The useful thing here is that with interviewing software recruiter can analyze nonverbal communications.

2. Analysis of the practical application of AI in human resources functions

“In the context of human resource management, artificial intelligence gradually lies in the passion of realization of new learning, critical thinking, analysis and work behaviour.” (Harminder, 2020)

Recognizing the benefits of implementing AI in human resources functions, various companies have begun to offer intelligent software that, in the field of selection, for example, easily identifies suitable candidates for the vacant position. Such softwares are: Ideal (Ideal.com), Pymetrics, Crystal, which are more popular .

Ideal. Ideal acquires talents in an intelligent way. The software they use offers screening of thousands of candidates, in real time with accuracy and the highest standards of fairness. The use of AI provides an opportunity to analyze candidates in an existing database and to select

the best candidates. The software also allows the use of chatbots, which are available to candidates 24 hours a day, seven days a week. The chatbot offers the opportunity to conduct digital interviews, using AI to assess candidates' word choices, speech patterns and facial expressions to assess their suitability for the role and even the organization and its culture.

Pymetrics. Riddhi Shah analyzes how Pymetrics uses AI and Neuroscience to change the hiring process. Pymetrics developed games based on years of well-established neuroscience research. They have a set of 12 neuroscience mini-games that take less than half an hour to measure 90 cognitive, social and emotional traits of candidates. While many traits are said to be acquired while on the job, Pymetric focuses on measuring the intrinsic traits that do not change over time. Pymetrics makes custom algorithms for companies by running their mini-games on at least 50 of the organization's top performers. It then uses this model to compare and find applicants with similar traits. Job seekers play different games when applying for a job and a matching algorithm is used to select the one which would be the best fit for the role or have similar skills as the top performers at the company. This model has been mostly employed by companies to recruit for standard entry and midlevel corporate positions. To prevent discrimination in selection Pymetrics works to create a more ethical algorithm for activating artificial intelligence - Ethical AI: De-Biased Algorithms. The games played by the candidates are conducted in the form of a blind audition for job candidates. Candidates move through the platform anonymously, and the prediction algorithm does not use any demographic information to assess career fit. With AI that doesn't see race or sex, underlying skills specific to the job can shine through. Before any algorithm is deployed, pymetrics checks each algorithm and removes any bias through their open-sourced algorithm auditing tool, Audit-AI. (Shah, 2019).

Crystal. In early 2015, Crystal developed and released the first Personality AI app, which could tell you anyone's personality without a personality assessment. Personality AI analyzes millions of online data points to accurately identify a person's motivations, communication style, and other behavioral traits. Downloading the application allows you to analyze the personality of a person on popular social media sites (without himself applying for a job in the organization).

Conclusions

The results of the application of AI in the selection are extremely promising. Companies that have used artificial intelligence software to recruit staff have reduced the cost of

recruitment by 75%, their employee revenue has improved by 4% and turnover has decreased by 35%. (Ideal).

Some of the main conclusions of the study are related to: the need to change the syllabus for training of human resources specialists in higher education institutions; the need to update the knowledge and skills of teachers who prepare human resources specialists, social responsibility in the development of software products for human resources activities with AI; big data in human resources.

Need for change of the syllabus for training of the specialists of human resources in the higher educational establishments. The data presented by the analysis show that the activity of human resources is not what it was 20 years ago. And it is not what it was 5 years ago. The change is palpable. The method of selection has changed, the activities performed in practice by human resources specialists have changed.

This gives grounds to conclude that there is a real need to change the syllabus in which human resources specialists are trained. And this need is a result not only of the application of AI in human resources functions, but also the different nature of the tasks performed by human resources specialists in practice, compared to the period during which the curricula were developed. Even the curricula that were developed before the COVID-19 pandemic do not seem up to date.

The introduction of software products for human resources and assignment of practical tasks for working with them is a mandatory element of the training of new human resources specialists. In this way, they will gain confidence that they have up-to-date knowledge and skills for digital HR. And more in this regard. Fundamental terms related to artificial intelligence need to be present in the syllabus also. This will facilitate the communication of future HR professionals with computer specialists.

Need to update the knowledge and skills of teachers who train human resources professionals. As in any profession, so in the profession of teachers who train human resources specialists, it is required to maintain the professional qualification. In many cases, this is a matter of personal choice and social responsibility for professional competence, but it may be a good idea to organize more seminars between practicing human resources professionals and human resources educators. It is true that most of the teachers work daily in practice, they also have their own business. However, the synchronization of competencies will be beneficial for both business and higher education institutions, respectively for students.

Social responsibility in the development of software products in the field of human resources with artificial intelligence. At first glance, AI is our hope for more objectivity in decision-making processes. In principle, this is the case, but provided that the algorithms embedded in the AI are objective. Given the fact that algorithms are created by people who may be biased, there is a risk of reducing the objectivity of AI.

The more objective the data from which AI is learned, the more objective will be it. The analysis of selection software products shows that their creators use and have in mind to create ethical algorithms for activating artificial intelligence. Social responsibility must go hand in hand with software products with AI.

Big data in human resources. The Internet offers many and varied big data (structured and unstructured), the use of which can provide a competitive advantage, but only if the big data to be collected is correctly identified. Otherwise, the activity of human resources will have a lot of data that will not provide the necessary information. At present, human resources professionals work with data analysts who extract large data for information that can be used to predict human behavior, for example. The task of human resources specialists is to direct the data analyzer to the appropriate data that it can use. By appropriate I mean reliable sources of information (labor law, research results in the field of human resources and others). It is important for the HR professional to have an understanding of what he would like to get as a result of the data analyzer (retrospective analysis, diagnostic analysis or prognosis). Another thing that is also very important is that the HR specialist has clarity on what data will be used to get the desired result - structured, unstructured, paid or free, internal or external big data. Without this cooperation and understanding of the work of both parties, the result is rarely successful. In the future, there will probably be software that will facilitate the collaboration of human resources professionals and data analysts, but at the moment they still can't do without each other. This leads to the conclusion that the new syllabus for human resources professionals should include the topics of the nature and importance of big data in human resources activities, the types of big data, their collection, updating, use and storage.

The topic of AI in human resources functions will continue to be discussed, looking for the advantages and disadvantages of AI, the benefits and risks, but this is part of the process. It is more important to realize that part of science fiction is already a reality and it is up to us how we will take advantage of it.

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